

SEQUENCE LISTING

<110> ImmunoGen, Inc.

<120> ANTIBODIES TO NON-SHED MUC1 AND MUC16, AND USES THEREOF

<130> A8340

<150> US 60/393,094

<151> 2002-07-03

<160> 33

<170> PatentIn version 3.2

<210> 1

<211> 86

<212> PRT

<213> Homo sapiens

<400> 1

Phe Leu Gln Ile Tyr Lys Gln Gly Gly Phe Leu Gly Leu Ser Asn Ile
1 5 10 15

Lys Phe Arg Pro Gly Ser Val Val Val Gln Leu Thr Leu Ala Phe Arg
20 25 30

Glu Gly Thr Ile Asn Val His Asp Val Glu Thr Gln Phe Asn Gln Tyr
35 40 45

Lys Thr Glu Ala Ala Ser Arg Tyr Asn Leu Thr Ile Ser Asp Val Ser
50 55 60

Val Ser Asp Val Pro Phe Pro Phe Ser Ala Gln Ser Gly Ala Gly Val
65 70 75 80

Pro Gly Trp Gly Ile Ala
85

<210> 2

<211> 108

<212> PRT

<213> Homo sapiens

<400> 2

Thr Asn Tyr Gln Arg Asn Lys Arg Asn Ile Glu Asp Ala Leu Asn Gln
1 5 10 15

Leu Phe Arg Asn Ser Ser Ile Lys Ser Tyr Phe Ser Asp Cys Gln Val
20 25 30

Ser Thr Phe Arg Ser Val Pro Asn Arg His His Thr Gly Val Asp Ser
35 40 45

Leu Cys Asn Phe Ser Pro Leu Ala Arg Arg Val Asp Arg Val Ala Ile
50 55 60

Tyr Glu Glu Phe Leu Arg Met Thr Arg Asn Gly Thr Gln Leu Gln Asn
65 70 75 80

Phe Thr Leu Asp Arg Ser Ser Val Leu Val Asp Gly Tyr Ser Pro Asn
85 90 95

Arg Asn Glu Pro Leu Thr Gly Asn Ser Asp Leu Pro
100 105

<210> 3
<211> 20
<212> PRT
<213> Homo sapiens

<400> 3

Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly
1 5 10 15

Val Thr Ser Ala
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<210> 4
<211> 25
<212> PRT
<213> Homo sapiens

<400> 4

Phe Trp Ala Val Ile Leu Ile Gly Leu Ala Gly Leu Leu Gly Leu Ile
1 5 10 15

Thr Cys Leu Ile Cys Gly Val Leu Val
20 25

<210> 5
<211> 4
<212> PRT
<213> Homo sapiens

<400> 5

Arg Asn Lys Arg
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<210> 6
<211> 4
<212> PRT
<213> Homo sapiens

<400> 6

Ser Pro Leu Ala
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<210> 7
<211> 86
<212> PRT
<213> Artificial Sequence

<220>
<223> Fusion protein

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Glutathione S-transferase fusion site

<400> 7

Phe Leu Gln Ile Tyr Lys Gln Gly Gly Phe Leu Gly Leu Ser Asn Ile
1 5 10 15

Lys Phe Arg Pro Gly Ser Val Val Val Gln Leu Thr Leu Ala Phe Arg
20 25 30

Glu Gly Thr Ile Asn Val His Asp Val Glu Thr Gln Phe Asn Gln Tyr
35 40 45

Lys Thr Glu Ala Ala Ser Arg Tyr Asn Leu Thr Ile Ser Asp Val Ser
50 55 60

Val Ser Asp Val Pro Phe Pro Phe Ser Ala Gln Ser Gly Ala Gly Val
65 70 75 80

Pro Gly Trp Gly Ile Ala
85

<210> 8
<211> 21
<212> PRT
<213> Homo sapiens

<400> 8

Gln Leu Thr Leu Ala Phe Arg Glu Gly Thr Ile Asn Val His Asp Val
1 5 10 15

Glu Thr Gln Phe Asn
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<210> 9
<211> 21
<212> PRT
<213> Homo sapiens

<400> 9

Gln Tyr Lys Thr Glu Ala Ala Ser Arg Tyr Asn Leu Thr Ile Ser Asp
1 5 10 15

Val Ser Val Ser Asp
20

<210> 10
<211> 21
<212> PRT
<213> Homo sapiens

<400> 10

Phe Leu Gln Ile Tyr Lys Gln Gly Gly Phe Leu Gly Leu Ser Asn Ile
1 5 10 15

Lys Phe Arg Pro Gly
20

<210> 11
<211> 21
<212> PRT
<213> Homo sapiens

<400> 11

Phe Arg Pro Gly Ser Val Val Val Gln Leu Thr Leu Ala Phe Arg Glu
1 5 10 15

Gly Thr Ile Asn Val
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<210> 12
<211> 19
<212> PRT
<213> Homo sapiens

<400> 12

Val Pro Phe Pro Phe Ser Ala Gln Ser Gly Ala Gly Val Pro Gly Trp
 1 5 10 15

Gly Ile Ala

<210> 13
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 <213> Artificial Sequence

<220>
 <223> Fusion protein

<220>
 <221> MISC_FEATURE
 <222> (1)..(1)
 <223> Glutathione S-transferase fusion site

<400> 13

Thr Asn Tyr Gln Arg Asn Lys Arg Asn Ile Glu Asp Ala Leu Asn Gln
 1 5 10 15

Leu Phe Arg Asn Ser Ser Ile Lys Ser Tyr Phe Ser Asp Cys Gln Val
 20 25 30

Ser Thr Phe Arg Ser Val Pro Asn Arg His His Thr Gly Val Asp Ser
 35 40 45

Leu Cys Asn Phe Ser Pro Leu Ala Arg Arg Val Asp Arg Val Ala Ile
 50 55 60

Tyr Glu Glu Phe Leu Arg Met Thr Arg Asn Gly Thr Gln Leu Gln Asn
 65 70 75 80

Phe Thr Leu Asp Arg Ser Ser Val Leu Val Asp Gly Tyr Ser Pro Asn
 85 90 95

Arg Asn Glu Pro Leu Thr Gly Asn Ser Asp Leu Pro
 100 105

<210> 14
 <211> 20
 <212> PRT
 <213> Homo sapiens

<400> 14

Ser Ser Val Leu Val Asp Gly Tyr Ser Pro Asn Arg Asn Glu Pro Leu

1 5 10 15

Thr Gly Asn Ser
20

<210> 15
<211> 20
<212> PRT
<213> Homo sapiens

<400> 15

Thr Asn Tyr Gln Arg Asn Lys Arg Asn Ile Glu Asp Ala Leu Asn Gln
1 5 10 15

Leu Phe Arg Asn
20

<210> 16
<211> 21
<212> PRT
<213> Homo sapiens

<400> 16

Phe Arg Asn Ser Ser Ile Lys Ser Tyr Phe Ser Asp Cys Gln Val Ser
1 5 10 15

Thr Phe Arg Ser Val
20

<210> 17
<211> 23
<212> PRT
<213> Homo sapiens

<400> 17

Ser Val Pro Asn Arg His His Thr Gly Val Asp Ser Leu Cys Asn Phe
1 5 10 15

Ser Pro Leu Ala Arg Arg Val
20

<210> 18
<211> 28
<212> PRT
<213> Homo sapiens

<400> 18

Asp Arg Val Ala Ile Tyr Glu Glu Phe Leu Arg Met Thr Arg Asn Gly

Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
180 185 190

Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Asn Arg Pro Ala Leu
195 200 205

Ala Ser Thr Ala Pro Pro Val His Asn Val Thr Ser Ala Ser Gly Ser
210 215 220

Ala Ser Gly Ser Ala Ser Thr Leu Val His Asn Gly Thr Ser Ala Arg
225 230 235 240

Ala Thr Thr Thr Pro Ala Ser Lys Ser Thr Pro Phe Ser Ile Pro Ser
245 250 255

His His Ser Asp Thr Pro Thr Thr Leu Ala Ser His Ser Thr Lys Thr
260 265 270

Asp Ala Ser Ser Thr His His Ser Thr Val Pro Pro Leu Thr Ser Ser
275 280 285

Asn His Ser Thr Ser Pro Gln Leu Ser Thr Gly Val Ser Phe Phe Phe
290 295 300

Leu Ser Phe His Ile Ser Asn Leu Gln Phe Asn Ser Ser Leu Glu Asp
305 310 315 320

Pro Ser Thr Asp Tyr Tyr Gln Glu Leu Gln Arg Asp Ile Ser Glu Met
325 330 335

Phe Leu Gln Ile Tyr Lys Gln Gly Gly Phe Leu Gly Leu Ser Asn Ile
340 345 350

Lys Phe Arg Pro Gly Ser Val Val Val Gln Leu Thr Leu Ala Phe Arg
355 360 365

Glu Gly Thr Ile Asn Val His Asp Val Glu Thr Gln Phe Asn Gln Tyr
370 375 380

Lys Thr Glu Ala Ala Ser Arg Tyr Asn Leu Thr Ile Ser Asp Val Ser
385 390 395 400

Val Ser Asp Val Pro Phe Pro Phe Ser Ala Gln Ser Gly Ala Gly Val
405 410 415

Pro Gly Trp Gly Ile Ala Leu Leu Val Leu Val Cys Val Leu Val Ala
420 425 430

Leu Ala Ile Val Tyr Leu Ile Ala Leu Ala Val Cys Gln Cys Arg Arg
435 440 445

Lys Asn Tyr Gly Gln Leu Asp Ile Phe Pro Ala Arg Asp Thr Tyr His
450 455 460

Pro Met Ser Glu Tyr Pro Thr Tyr His Thr His Gly Arg Tyr Val Pro
465 470 475 480

Pro Ser Ser Thr Asp Arg Ser Pro Tyr Glu Lys Val Ser Ala Gly Asn
485 490 495

Gly Gly Ser Ser Leu Ser Tyr Thr Asn Pro Ala Val Ala Ala Thr Ser
500 505 510

Ala Asn Leu
515

<210> 20
<211> 2234
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary Muc16 protein

<400> 20

Met Glu His Ile Thr Lys Ile Pro Asn Glu Ala Ala His Arg Gly Thr
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Ile Arg Pro Val Lys Gly Pro Gln Thr Ser Thr Ser Pro Ala Ser Pro
20 25 30

Lys Gly Leu His Thr Gly Gly Thr Lys Arg Met Glu Thr Thr Thr Thr
35 40 45

Ala Leu Lys Thr Thr Thr Thr Ala Leu Lys Thr Thr Ser Arg Ala Thr
50 55 60

Leu Thr Thr Ser Val Tyr Thr Pro Thr Leu Gly Thr Leu Thr Pro Leu
65 70 75 80

Asn Ala Ser Arg Gln Met Ala Ser Thr Ile Leu Thr Glu Met Met Ile

85

90

95

Thr Thr Pro Tyr Val Phe Pro Asp Val Pro Glu Thr Thr Ser Ser Leu
 100 105 110

Ala Thr Ser Leu Gly Ala Glu Thr Ser Thr Ala Leu Pro Arg Thr Thr
 115 120 125

Pro Ser Val Leu Asn Arg Glu Ser Glu Thr Thr Ala Ser Leu Val Ser
 130 135 140

Arg Ser Gly Ala Glu Arg Ser Pro Val Ile Gln Thr Leu Asp Val Ser
 145 150 155 160

Ser Ser Glu Pro Asp Thr Thr Ala Ser Trp Val Ile His Pro Ala Glu
 165 170 175

Thr Ile Pro Thr Val Ser Lys Thr Thr Pro Asn Phe Phe His Ser Glu
 180 185 190

Leu Asp Thr Val Ser Ser Thr Ala Thr Ser His Gly Ala Asp Val Ser
 195 200 205

Ser Ala Ile Pro Thr Asn Ile Ser Pro Ser Glu Leu Asp Ala Leu Thr
 210 215 220

Pro Leu Val Thr Ile Ser Gly Thr Asp Thr Ser Thr Thr Phe Pro Thr
 225 230 235 240

Leu Thr Lys Ser Pro His Glu Thr Glu Thr Arg Thr Thr Trp Leu Thr
 245 250 255

His Pro Ala Glu Thr Ser Ser Thr Ile Pro Arg Thr Ile Pro Asn Phe
 260 265 270

Ser His His Glu Ser Asp Ala Thr Pro Ser Ile Ala Thr Ser Pro Gly
 275 280 285

Ala Glu Thr Ser Ser Ala Ile Pro Ile Met Thr Val Ser Pro Gly Ala
 290 295 300

Glu Asp Leu Val Thr Ser Gln Val Thr Ser Ser Gly Thr Asp Arg Asn
 305 310 315 320

Met Thr Ile Pro Thr Leu Thr Leu Ser Pro Gly Glu Pro Lys Thr Ile
 10/22

325

330

335

Ala Ser Leu Val Thr His Pro Glu Ala Gln Thr Ser Ser Ala Ile Pro
340 345 350

Thr Ser Thr Ile Ser Pro Ala Val Ser Arg Leu Val Thr Ser Met Val
355 360 365

Thr Ser Leu Ala Ala Lys Thr Ser Thr Thr Asn Arg Ala Leu Thr Asn
370 375 380

Ser Pro Gly Glu Pro Ala Thr Thr Val Ser Leu Val Thr His Pro Ala
385 390 395 400

Gln Thr Ser Pro Thr Val Pro Trp Thr Thr Ser Ile Phe Phe His Ser
405 410 415

Lys Ser Asp Thr Thr Pro Ser Met Thr Thr Ser His Gly Ala Glu Ser
420 425 430

Ser Ser Ala Val Pro Thr Pro Thr Val Ser Thr Glu Val Pro Gly Val
435 440 445

Val Thr Pro Leu Val Thr Ser Ser Arg Ala Val Ile Ser Thr Thr Ile
450 455 460

Pro Ile Leu Thr Leu Ser Pro Gly Glu Pro Glu Thr Thr Pro Ser Met
465 470 475 480

Ala Thr Ser His Gly Glu Glu Ala Ser Ser Ala Ile Pro Thr Pro Thr
485 490 495

Val Ser Pro Gly Val Pro Gly Val Val Thr Ser Leu Val Thr Ser Ser
500 505 510

Arg Ala Val Thr Ser Thr Thr Ile Pro Ile Leu Thr Phe Ser Leu Gly
515 520 525

Glu Pro Glu Thr Thr Pro Ser Met Ala Thr Ser His Gly Thr Glu Ala
530 535 540

Gly Ser Ala Val Pro Thr Val Leu Pro Glu Val Pro Gly Met Val Thr
545 550 555 560

Ser Leu Val Ala Ser Ser Arg Ala Val Thr Ser Thr Thr Leu Pro Thr
11/22

565

570

575

Leu Thr Leu Ser Pro Gly Glu Pro Glu Thr Thr Pro Ser Met Ala Thr
580 585 590

Ser His Gly Ala Glu Ala Ser Ser Thr Val Pro Thr Val Ser Pro Glu
595 600 605

Val Pro Gly Val Val Thr Ser Leu Val Thr Ser Ser Ser Gly Val Asn
610 615 620

Ser Thr Ser Ile Pro Thr Leu Ile Leu Ser Pro Gly Glu Leu Glu Thr
625 630 635 640

Thr Pro Ser Met Ala Thr Ser His Gly Ala Glu Ala Ser Ser Ala Val
645 650 655

Pro Thr Pro Thr Val Ser Pro Gly Val Ser Gly Val Val Thr Pro Leu
660 665 670

Val Thr Ser Ser Arg Ala Val Thr Ser Thr Thr Ile Pro Ile Leu Thr
675 680 685

Leu Ser Ser Ser Glu Pro Glu Thr Thr Pro Ser Met Ala Thr Ser His
690 695 700

Gly Val Glu Ala Ser Ser Ala Val Leu Thr Val Ser Pro Glu Val Pro
705 710 715 720

Gly Met Val Thr Ser Leu Val Thr Ser Ser Arg Ala Val Thr Ser Thr
725 730 735

Thr Ile Pro Thr Leu Thr Ile Ser Ser Asp Glu Pro Glu Thr Thr Thr
740 745 750

Ser Leu Val Thr His Ser Glu Ala Lys Met Ile Ser Ala Ile Pro Thr
755 760 765

Leu Ala Val Ser Pro Thr Val Gln Gly Leu Val Thr Ser Leu Val Thr
770 775 780

Ser Ser Gly Ser Glu Thr Ser Ala Phe Ser Asn Leu Thr Val Ala Ser
785 790 795 800

Ser Gln Pro Glu Thr Ile Asp Ser Trp Val Ala His Pro Gly Thr Glu
12/22

805										810					815				
Ala	Ser	Ser	Val	Val	Pro	Thr	Leu	Thr	Val	Ser	Thr	Gly	Glu	Pro	Phe				
			820					825					830						
Thr	Asn	Ile	Ser	Leu	Val	Thr	His	Pro	Ala	Glu	Ser	Ser	Ser	Thr	Leu				
		835					840					845							
Pro	Arg	Thr	Thr	Ser	Arg	Phe	Ser	His	Ser	Glu	Leu	Asp	Thr	Met	Pro				
	850					855					860								
Ser	Thr	Val	Thr	Ser	Pro	Glu	Ala	Glu	Ser	Ser	Ser	Ala	Ile	Ser	Thr				
865					870					875					880				
Thr	Ile	Ser	Pro	Gly	Ile	Pro	Gly	Val	Leu	Thr	Ser	Leu	Val	Thr	Ser				
				885					890					895					
Ser	Gly	Arg	Asp	Ile	Ser	Ala	Thr	Phe	Pro	Thr	Val	Pro	Glu	Ser	Pro				
			900					905					910						
His	Glu	Ser	Glu	Ala	Thr	Ala	Ser	Trp	Val	Thr	His	Pro	Ala	Val	Thr				
		915					920					925							
Ser	Thr	Thr	Val	Pro	Arg	Thr	Thr	Pro	Asn	Tyr	Ser	His	Ser	Glu	Pro				
	930					935					940								
Asp	Thr	Thr	Pro	Ser	Ile	Ala	Thr	Ser	Pro	Gly	Ala	Glu	Ala	Thr	Ser				
945					950					955					960				
Asp	Phe	Pro	Thr	Ile	Thr	Val	Ser	Pro	Asp	Val	Pro	Asp	Met	Val	Thr				
				965					970					975					
Ser	Gln	Val	Thr	Ser	Ser	Gly	Thr	Asp	Thr	Ser	Ile	Thr	Ile	Pro	Thr				
		980						985					990						
Leu	Thr	Leu	Ser	Ser	Gly	Glu	Pro	Glu	Thr	Thr	Thr	Ser	Phe	Ile	Thr				
		995					1000						1005						
Tyr	Ser	Glu	Thr	His	Thr	Ser	Ser	Ala	Ile	Pro	Thr	Leu	Pro	Val					
	1010					1015					1020								
Ser	Pro	Gly	Ala	Ser	Lys	Met	Leu	Thr	Ser	Leu	Val	Ile	Ser	Ser					
	1025					1030					1035								
Gly	Thr	Asp	Ser	Thr	Thr	Thr	Phe	Pro	Thr	Leu	Thr	Glu	Thr	Pro					

1040		1045		1050
Tyr Glu	Pro Glu Thr Thr	Ala Ile Gln Leu Ile	His Pro Ala Glu	
1055		1060	1065	
Thr Asn	Thr Met Val Pro	Lys Thr Thr Pro Lys	Phe Ser His Ser	
1070		1075	1080	
Lys Ser	Asp Thr Thr Leu	Pro Val Ala Ile Thr	Ser Pro Gly Pro	
1085		1090	1095	
Glu Ala	Ser Ser Ala Val	Ser Thr Thr Thr Ile	Ser Pro Asp Met	
1100		1105	1110	
Ser Asp	Leu Val Thr Ser	Leu Val Pro Ser Ser	Gly Thr Asp Thr	
1115		1120	1125	
Ser Thr	Thr Phe Pro Thr	Leu Ser Glu Thr Pro	Tyr Glu Pro Glu	
1130		1135	1140	
Thr Thr	Val Thr Trp Leu	Thr His Pro Ala Glu	Thr Ser Thr Thr	
1145		1150	1155	
Val Ser	Gly Thr Ile Pro	Asn Phe Ser His Arg	Gly Ser Asp Thr	
1160		1165	1170	
Ala Pro	Ser Met Val Thr	Ser Pro Gly Val Asp	Thr Arg Ser Gly	
1175		1180	1185	
Val Pro	Thr Thr Thr Ile	Pro Pro Ser Ile Pro	Gly Val Val Thr	
1190		1195	1200	
Ser Gln	Val Thr Ser Ser	Ala Thr Asp Thr Ser	Thr Ala Ile Pro	
1205		1210	1215	
Thr Leu	Thr Pro Ser Pro	Gly Glu Pro Glu Thr	Thr Ala Ser Ser	
1220		1225	1230	
Ala Thr	His Pro Gly Thr	Gln Thr Gly Phe Thr	Val Pro Ile Arg	
1235		1240	1245	
Thr Val	Pro Ser Ser Glu	Pro Asp Thr Met Ala	Ser Trp Val Thr	
1250		1255	1260	
His Pro	Pro Gln Thr Ser	Thr Pro Val Ser Arg	Thr Thr Ser Ser	

1265		1270		1275
Phe Ser	His Ser Ser Pro	Asp Ala Thr Pro Val	Met Ala Thr Ser	
1280		1285	1290	
Pro Arg	Thr Glu Ala Ser Ser	Ala Val Leu Thr Thr	Ile Ser Pro	
1295		1300	1305	
Gly Ala	Pro Glu Met Val Thr	Ser Gln Ile Thr Ser	Ser Gly Ala	
1310		1315	1320	
Ala Thr	Ser Thr Thr Val Pro	Thr Leu Thr His Ser	Pro Gly Met	
1325		1330	1335	
Pro Glu	Thr Thr Ala Leu Leu	Ser Thr His Pro Arg	Thr Gly Thr	
1340		1345	1350	
Ser Lys	Thr Phe Pro Ala Ser	Thr Val Phe Pro Gln	Val Ser Glu	
1355		1360	1365	
Thr Thr	Ala Ser Leu Thr Ile	Arg Pro Gly Ala Glu	Thr Ser Thr	
1370		1375	1380	
Ala Leu	Pro Thr Gln Thr Thr	Ser Ser Leu Phe Thr	Leu Leu Val	
1385		1390	1395	
Thr Gly	Thr Ser Arg Val Asp	Leu Ser Pro Thr Ala	Ser Pro Gly	
1400		1405	1410	
Val Ser	Ala Lys Thr Ala Pro	Leu Ser Thr His Pro	Gly Thr Glu	
1415		1420	1425	
Thr Ser	Thr Met Ile Pro Thr	Ser Thr Leu Ser Leu	Gly Leu Leu	
1430		1435	1440	
Glu Thr	Thr Gly Leu Leu Ala	Thr Ser Ser Ser Ala	Glu Thr Ser	
1445		1450	1455	
Thr Ser	Thr Leu Thr Leu Thr	Val Ser Pro Ala Val	Ser Gly Leu	
1460		1465	1470	
Ser Ser	Ala Ser Ile Thr Thr	Asp Lys Pro Gln Thr	Val Thr Ser	
1475		1480	1485	
Trp Asn	Thr Glu Thr Ser Pro	Ser Val Thr Ser Val	Gly Pro Pro	

1490		1495		1500
Glu Phe Ser Arg Thr Val Thr Gly Thr Thr Met Thr Leu Ile Pro				
1505		1510		1515
Ser Glu Met Pro Thr Pro Pro Lys Thr Ser His Gly Glu Gly Val				
1520		1525		1530
Ser Pro Thr Thr Ile Leu Arg Thr Thr Met Val Glu Ala Thr Asn				
1535		1540		1545
Leu Ala Thr Thr Gly Ser Ser Pro Thr Val Ala Lys Thr Thr Thr				
1550		1555		1560
Thr Phe Asn Thr Leu Ala Gly Ser Leu Phe Thr Pro Leu Thr Thr				
1565		1570		1575
Pro Gly Met Ser Thr Leu Ala Ser Glu Ser Val Thr Ser Arg Thr				
1580		1585		1590
Ser Tyr Asn His Arg Ser Trp Ile Ser Thr Thr Ser Ser Tyr Asn				
1595		1600		1605
Arg Arg Tyr Trp Thr Pro Ala Thr Ser Thr Pro Val Thr Ser Thr				
1610		1615		1620
Phe Ser Pro Gly Ile Ser Thr Ser Ser Ile Pro Ser Ser Thr Ala				
1625		1630		1635
Ala Thr Val Pro Phe Met Val Pro Phe Thr Leu Asn Phe Thr Ile				
1640		1645		1650
Thr Asn Leu Gln Tyr Glu Glu Asp Met Arg His Pro Gly Ser Arg				
1655		1660		1665
Lys Phe Asn Ala Thr Glu Arg Glu Leu Gln Gly Leu Leu Lys Pro				
1670		1675		1680
Leu Phe Arg Asn Ser Ser Leu Glu Tyr Leu Tyr Ser Gly Cys Arg				
1685		1690		1695
Leu Ala Ser Leu Arg Pro Glu Lys Asp Ser Ser Ala Met Ala Val				
1700		1705		1710
Asp Ala Ile Cys Thr His Arg Pro Asp Pro Glu Asp Leu Gly Leu				

1715								1720								1725
Asp	Arg	Glu	Arg	Leu	Tyr	Trp	Glu	Leu	Ser	Asn	Leu	Thr	Asn	Gly		
1730						1735					1740					
Ile	Gln	Glu	Leu	Gly	Pro	Tyr	Thr	Leu	Asp	Arg	Asn	Ser	Leu	Tyr		
1745						1750					1755					
Val	Asn	Gly	Phe	Thr	His	Arg	Ser	Ser	Met	Pro	Thr	Thr	Ser	Thr		
1760						1765					1770					
Pro	Gly	Thr	Ser	Thr	Val	Asp	Val	Gly	Thr	Ser	Gly	Thr	Pro	Ser		
1775						1780					1785					
Ser	Ser	Pro	Ser	Pro	Thr	Ala	Ala	Gly	Pro	Leu	Leu	Met	Pro	Phe		
1790						1795					1800					
Thr	Leu	Asn	Phe	Thr	Ile	Thr	Asn	Leu	Gln	Tyr	Glu	Glu	Asp	Met		
1805						1810					1815					
Arg	Arg	Thr	Gly	Ser	Arg	Lys	Phe	Asn	Thr	Met	Glu	Ser	Val	Leu		
1820						1825					1830					
Gln	Gly	Leu	Leu	Lys	Pro	Leu	Phe	Lys	Asn	Thr	Ser	Val	Gly	Pro		
1835						1840					1845					
Leu	Tyr	Ser	Gly	Cys	Arg	Leu	Thr	Leu	Leu	Arg	Pro	Glu	Lys	Asp		
1850						1855					1860					
Gly	Ala	Ala	Thr	Gly	Val	Asp	Ala	Ile	Cys	Thr	His	Arg	Leu	Asp		
1865						1870					1875					
Pro	Lys	Ser	Pro	Gly	Leu	Asn	Arg	Glu	Gln	Leu	Tyr	Trp	Glu	Leu		
1880						1885					1890					
Ser	Lys	Leu	Thr	Asn	Asp	Ile	Glu	Glu	Leu	Gly	Pro	Tyr	Thr	Leu		
1895						1900					1905					
Asp	Arg	Asn	Ser	Leu	Tyr	Val	Asn	Gly	Phe	Thr	His	Gln	Ser	Ser		
1910						1915					1920					
Val	Ser	Thr	Thr	Ser	Thr	Pro	Gly	Thr	Ser	Thr	Val	Asp	Leu	Arg		
1925						1930					1935					
Thr	Ser	Gly	Thr	Pro	Ser	Ser	Leu	Ser	Ser	Pro	Thr	Ile	Thr	Leu		

1940	1945	1950
Leu Arg Asp Ile Gln Asp 1955	Lys Val Thr Thr Leu 1960	Tyr Lys Gly Ser 1965
Gln Leu His Asp Thr Phe 1970	Arg Phe Cys Leu Val 1975	Thr Asn Leu Thr 1980
Met Asp Ser Val Leu Val 1985	Thr Val Lys Ala Leu 1990	Phe Ser Ser Asn 1995
Leu Asp Pro Ser Leu Val 2000	Glu Gln Val Phe Leu 2005	Asp Lys Thr Leu 2010
Asn Ala Ser Phe His Trp 2015	Leu Gly Ser Thr Tyr 2020	Gln Leu Val Asp 2025
Ile His Val Thr Glu Met 2030	Glu Ser Ser Val Tyr 2035	Gln Pro Thr Ser 2040
Ser Ser Ser Thr Gln His 2045	Phe Tyr Pro Asn Phe 2050	Thr Ile Thr Asn 2055
Leu Pro Tyr Ser Gln Asp 2060	Lys Ala Gln Pro Gly 2065	Thr Thr Asn Tyr 2070
Gln Arg Asn Lys Arg Asn 2075	Ile Glu Asp Ala Leu 2080	Asn Gln Leu Phe 2085
Arg Asn Ser Ser Ile Lys 2090	Ser Tyr Phe Ser Asp 2095	Cys Gln Val Ser 2100
Thr Phe Arg Ser Val Pro 2105	Asn Arg His His Thr 2110	Gly Val Asp Ser 2115
Leu Cys Asn Phe Ser Pro 2120	Leu Ala Arg Arg Val 2125	Asp Arg Val Ala 2130
Ile Tyr Glu Glu Phe Leu 2135	Arg Met Thr Arg Asn 2140	Gly Thr Gln Leu 2145
Gln Asn Phe Thr Leu Asp 2150	Arg Ser Ser Val Leu 2155	Val Asp Gly Tyr 2160
Ser Pro Asn Arg Asn Glu Pro	Leu Thr Gly Asn Ser	Asp Leu Pro

2165		2170		2175
Phe Trp Ala Val Ile Leu Ile Gly Leu Ala Gly Leu Leu Gly Leu				
2180		2185		2190
Ile Thr Cys Leu Ile Cys Gly Val Leu Val Thr Thr Arg Arg Arg				
2195		2200		2205
Lys Lys Glu Gly Glu Tyr Asn Val Gln Gln Gln Cys Pro Gly Tyr				
2210		2215		2220
Tyr Gln Ser His Leu Asp Leu Glu Asp Leu Gln				
2225		2230		

<210> 21
 <211> 710
 <212> DNA
 <213> Homo sapiens

<400> 21
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 acagttgtta caggttctgg tcatgcaagc tctaccgact acaaggacga cgatgacaag 120
 tctagattcc gaaacagcag catcaagagt tatttttctg actgtcaagt ttcaacattc 180
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 acccagctgc agaacttcac cctggacagg agcagtgtcc ttgtggatgg gtattctccc 360
 aacagaaatg agcccttaac tgggaattct gaccttcctt tctgggctgt catcctcatc 420
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 cgccggcgga agaaggaagg agaatacaac gtccagcaac agtgcccagg ctactaccag 540
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